AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (**Currently Amended**) A wind turbine generator including a pitch-angle control mechanism for controlling a pitch angle of windmill blades on the basis of a blade-pitch-angle command, the wind turbine generator comprising:

an accelerometer, attached to a nacelle, for detecting the acceleration due to vibrations of the nacelle; and

an active damping unit for calculating a pitch angle of the windmill blades for generating a thrust on the windmill blades so as to cancel out the vibrations of the nacelle on the basis of the acceleration detected with the accelerometer and for outputting a blade-pitch-angle command to the pitch-angle control mechanism,

wherein the active damping unit includes

a speed estimation unit for estimating a speed from the acceleration detected with the accelerometer; and

a control unit for calculating a pitch angle of the windmill blades for generating a thrust on the windmill blades so as to cancel out the vibrations of the nacelle on the basis of the speed output from the speed estimation unit; and

wherein the control unit includes a phase-lead compensator for advancing the phase of the speed output from the speed estimation unit by a predetermined amount, and calculates the pitch angle on the basis of the speed obtained after the phase-lead compensation.

2. (**Currently Amended**) A wind turbine generator including a pitch-angle control mechanism for controlling a pitch angle of windmill blades on the basis of a blade-pitch-angle command, the wind turbine generator comprising:

an accelerometer, attached to a nacelle, for detecting the acceleration due to vibrations of the nacelle;

an active damping unit for calculating a pitch angle of the windmill blades for generating

a thrust on the windmill blades so as to cancel out the vibrations of the nacelle on the basis of the acceleration detected with the accelerometer and for outputting a blade-pitch-angle command for damping;

a pitch-angle control unit for calculating a pitch angle of the windmill blades for controlling the output of the wind turbine generator to be a predetermined value on the basis of wind speed, the rotational speed of a windmill rotor, or the output of the wind turbine generator and for outputting a blade-pitch-angle command for output control; and

an adder for supplying the pitch-angle control mechanism with a blade-pitch-angle command obtained by combining the blade-pitch-angle command for damping output from the active damping unit with the blade-pitch-angle command for output control output from the pitch-angle control unit,

wherein the active damping unit includes

a speed estimation unit for estimating a speed from the acceleration detected with the accelerometer; and

a control unit for calculating a pitch angle of the windmill blades for generating a thrust on the windmill blades so as to cancel out the vibrations of the nacelle on the basis of the speed output from the speed estimation unit; and

wherein the control unit includes a phase-lead compensator for advancing the phase of the speed output from the speed estimation unit by a predetermined amount, and calculates the pitch angle on the basis of the speed obtained after the phase-lead compensation.

3. (**Canceled**)

4. (**Currently Amended**) The wind turbine generator according to claim [[3]] 1 or 2, wherein the speed estimation unit integrates the acceleration detected with the accelerometer to calculate the speed.

5. (**Canceled**)

6. (**Currently Amended**) The wind turbine generator according to claim [[5]] 1 or 2, wherein the control unit includes a phase-lag compensator for delaying the phase of the speed output from the phase-lead compensator by a predetermined amount, and calculates the pitch angle on the

basis of the speed obtained after the phase-lag compensation.

7. (**Currently Amended**) The wind turbine generator according to claim [[3]] 1 or 2, wherein the control unit includes any one of a proportional controller, a proportional-integral controller, a proportional-integral-derivative controller, a linear-quadratic regulator, and a linear-quadratic Gaussian regulator to which the speed estimated by the speed estimation unit is input to calculate the pitch angle.

8. (**Currently Amended**) The wind turbine generator according to claim 1 or 2, wherein the active damping unit includes a limiter for limiting the pitch angle of the windmill blades or the angular speed of the pitch angle of the windmill blades to a predetermined range.

9. (**Currently Amended**) An active damping method of a wind turbine generator including

a pitch-angle control mechanism for controlling a pitch angle of windmill blades on the basis of a blade-pitch-angle command, and

an accelerometer, attached to a nacelle, for detecting the acceleration due to vibrations of the nacelle, the active damping method comprising:

an active damping step of calculating a pitch angle of the windmill blades for generating a thrust on the windmill blades so as to cancel out the vibrations of the nacelle on the basis of the acceleration detected with the accelerometer and outputting a blade-pitch-angle command to the pitch-angle control mechanism;

wherein the active damping step includes

a speed estimation step of estimating a speed from the acceleration detected with the accelerometer; and

a control step of calculating a pitch angle of the windmill blades for generating a thrust on the windmill blades so as to cancel out the vibrations of the nacelle on the basis of the speed estimated in the speed estimation step; and

wherein the control step includes a phase-lead compensation step of advancing the phase of the speed estimated by the speed estimation step by a predetermined amount and calculates the pitch angle on the basis of the speed obtained after the phase-lead compensation.

10. (**Currently Amended**) An active damping method of a wind turbine generator including

a pitch-angle control mechanism for controlling a pitch angle of windmill blades on the basis of a blade-pitch-angle command, and

an accelerometer, attached to a nacelle, for detecting the acceleration due to vibrations of the nacelle, the active damping method comprising:

an active damping step of calculating a pitch angle of the windmill blades for generating a thrust on the windmill blades so as to cancel out the vibrations of the nacelle on the basis of the acceleration detected with the accelerometer and outputting a blade-pitch-angle command for damping;

a pitch-angle control step of calculating a pitch angle of the windmill blades for controlling the output of the wind turbine generator to be a predetermined value on the basis of wind speed, the rotational speed of a windmill rotor, or the output of the wind turbine generator and outputting a blade-pitch-angle command for output control; and

an addition step of supplying the pitch-angle control mechanism with a blade-pitch-angle command obtained by combining the blade-pitch-angle command for damping in the active damping step with the blade-pitch-angle command for output control in the pitch-angle control step;

wherein the active damping step includes:

a speed estimation step of estimating a speed from the acceleration detected with the accelerometer; and

a control step of calculating a pitch angle of the windmill blades for generating a thrust on the windmill blades so as to cancel out the vibrations of the nacelle on the basis of the speed estimated in the speed estimation step; and

wherein the control step includes a phase-lead compensation step of advancing the phase of the speed estimated by the speed estimation step by a predetermined amount and calculates the pitch angle on the basis of the speed obtained after the phase-lead compensation.

11. (**Canceled**)

12. (**Currently Amended**) The active damping method according to claim [[11]] 9 or 10, wherein the speed estimation step integrates the acceleration detected with the accelerometer to

calculate the speed.

13. (**Canceled**) The active damping method of a wind turbine generator according to claim 11, wherein the control step includes a phase-lead compensation step of advancing the phase of the speed estimated by the speed estimation step by a predetermined amount and calculates the pitch angle on the basis of the speed obtained after the phase-lead compensation.

14. (**Currently Amended**) The active damping method of a wind turbine generator according to claim [[13]] 9 or 10, wherein the control step includes a phase-lag compensation step of delaying the phase of the speed output from the phase-lead compensation step by a predetermined amount and calculates the pitch angle on the basis of the speed obtained after the phase-lag compensation.

15. (**Currently Amended**) The active damping method of a wind turbine generator according to claim [[11]] 9 or 10, wherein the control step includes a compensation step of performing any one of a proportional control, a proportional-integral control, a proportional-integral-derivative control, a control using a linear-quadratic regulator, and a control using a linear-quadratic Gaussian regulator for the speed estimated by the speed estimation step and calculates the pitch angle on the basis of the speed obtained after the compensation.

16. (**Currently Amended**) The active damping method of a wind turbine generator according to claim 9 or 10, wherein the active damping step includes a limiting step of limiting the pitch angle of the windmill blades or the angular speed of the pitch angle of the windmill blades to a predetermined range.

17. (**Currently Amended**) A windmill tower comprising [[a]] the wind turbine generator according to claim 1 or 2 ~~including~~

~~a pitch-angle control mechanism for controlling a pitch angle of windmill blades on the basis of a blade-pitch-angle command,~~

~~an accelerometer, attached to a nacelle, for detecting the acceleration due to vibrations of the nacelle, and~~

~~an active damping unit for calculating a pitch angle of the windmill blades for generating~~

~~a thrust on the windmill blades so as to cancel out the vibrations of the nacelle on the basis of the acceleration detected with the accelerometer and for outputting a blade-pitch-angle command to the pitch-angle control mechanism~~.